

IN THE DRAWINGS:

Attached hereto are replacement sheets of drawings. Please substitute each of the drawings for the drawings currently on file.

The attached replacement sheets of drawings include changes to Fig. 5. Attached hereto is a marked up copy of Fig. 5 showing the changes made in red ink. A clean copy of the figure is also included with the substitute figures.

The amendments to Fig. 5 corrects an error in the sequence as clearly evident by the published sequences available to one of skill in the art (See NCBI Accession No. AAH03178). New Fig. 5 includes a Q at amino acid number 124 rather than an L.

REMARKS

These remarks are in response to the Final Office Action mailed March 24, 2004. Applicants have amended claim 32. No new matter is introduced by the amendment. The specification has been amended to include sequence identifiers in compliance with the sequence rule requirements. Replacement figures are attached hereto. Figure 5 has been amended to correct a sequence error as clearly evident by the publicly available sequences.

Applicants acknowledge the Examiner's indication that claims 1-2 and 36-37 are allowable.

I. SEQUENCE LISTING REQUIREMENT

Applicant submits herewith a Sequence Listing in computer readable form as required by 37 CFR §1.824. In addition, applicant submits a substitute Sequence Listing as required under 37 CFR §1.823(a) and a statement under 37 CFR §1.821(f) and (g).

Applicant respectfully requests entry of the paper copy and computer readable copy of the Sequence Listing filed herewith for the instant application. Please replace the original Sequence Listing with the substitute Sequence Listing filed herewith following the Drawings. In addition, Applicants have amended the specification to insert the appropriate sequence identifiers.

II. DRAWINGS

Applicants submit herewith replacement drawings to better present the PAGE gel photographs.

III. CLAIM OBJECTION

Claim 32 is objected to because of the use of "An". Claim 32 has been amended to overcome this objection.

IV. REJECTION UNDER 35 U.S.C. §112, FIRST PARAGRAPH

Claim 32 stands rejected under 35 U.S.C. §112, first paragraph as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors at the time the application was filed, had possession of the claimed invention.

Applicants have amended claim 32. Applicants believe the amendment to claim 32 renders the rejection moot.

V. REJECTION UNDER 35 U.S.C. §102

Claim 32 stands rejected under 35 U.S.C. §102 as allegedly anticipated by White et al. Applicants respectfully traverse this rejection.

Claim 32 recites "... the amino acid sequence as set forth in SEQ ID NO:2. . ."

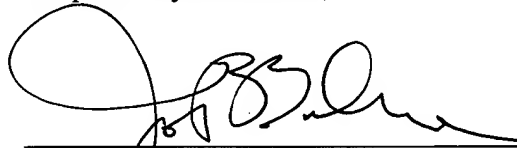
Applicants submit that White et al. do not teach SEQ ID NO:2 and therefore cannot anticipate Applicants' claimed invention. Accordingly, Applicants respectfully request withdrawal of the rejection.

Enclosed is a \$950 check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Date: _____

9/20/04

Respectfully submitted,



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α-L17

Tth MutY	1	MEAWRKALAWREN-ARPLPWR	GE	KDPIYRLVSEVLLQQTIRVEQALPYRRFL	53
Hsa MutY	51	CDGLARQPEEVVLQASVSSVHLFRDVAEVTAFRGSLSMVDQE-KRDLPMRRRAEDEMDLD		RRAYAVAVSEVLLQQTIRVEQALPYRRFL	139
Spo MutY	1	MSDSNHFLDLHSYTLQLEVERFRESIQFVYDKT-KRILPMRKKECIPSEDSPLDEMQPVORLYEMLVSEVLLQQTIRVEQALPYRRFL		RRAYAVAVSEVLLQQTIRVEQALPYRRFL	88
Eco MutY	1	MQASQFSAQVLDVMDKYGKRTLPNQ	ID	KTPYKVLVSEVLLQQTIRVEQALPYRRFL	56
Eco EndoIII	1	MNKAARLEILLTRLREN-NPHPTT	ELN	FSSPFELLIAVLLSAQATDVSVNKATAKLY	55
Tth MutY	54	ERFPIITKALAAASLE-EVLRTVQAGYYR-PAEHLHRLARSVEEL	PPSAELR-GPLGPTYTAATAVASTAFGERVAADGNVRRVLSRLFARES		145
Hsa MutY	140	QKMPITLQDLASASLE-EVNLWAGLGYYS-GRRLDEAGKVVVEELGGHMPRTAETLQQLPGMGRTYTAGATASIAFQATGVVDGNVAVMLCRVRATIGA		RRAYAVAVSEVLLQQTIRVEQALPYRRFL	237
Spo MutY	89	ETLPTLKSCAEAEYNTQVMPVLSGCMGYT-PCKRLLHQACCHLAKHPSEIPRTADEMAKGTIPGPGPYTAGAVLSIAKQOPTGIVDGNVIRVLSRALATHS		RRAYAVAVSEVLLQQTIRVEQALPYRRFL	187
Eco MutY	57	ARFPTVITDLANPLD-EVLHMTGLGYA-PARNLHKAACQVATLHGGKPEETFEEMA-ALPGVGRSTAGAILSLGKHFPPLDGNVIRVLSRALATHS		RRAYAVAVSEVLLQQTIRVEQALPYRRFL	153
Eco EndoIII	56	PVANTPAAMLELGE-GVKTYIKTIGLYNSKAENITKICRILLLEQHNGEVPEDRAALE-ALPGVGRKTANVNLNTAFGWPTTAVDTHIFRVCNRTQFAPG		RRAYAVAVSEVLLQQTIRVEQALPYRRFL	153
Tth MutY	146	-PK-----EKELFALAQGLPEGVDPGVWNOALMELGATVCLPKRPRCGAQLGAFCRG	KEAPGRYP-----APR-----		K 210
Hsa MutY	238	DPSSTLVSQQLVGLAQQLVDP-ARPGDFNOAMMELGATVCTPQRPCLSCQPVESLCRARQRVEQEQLLASGSLSGSPDVEECAPNTGQCHLCLPPSEPWD			336
Spo MutY	188	DCSKGKANALIKKLANELVDP-VRPGDFNOAMMELGATVCTPQSPRCSVQPTISEICKAYQ---EQNVIRDGNTIKYD---IEDVPCN-ICITDIPS			K 276
Eco MutY	154	MPGKKEVENKLSLSECVTPA-VGVERFNOAMMDLGAMICTRSPKCSLQPLONGCTA-----AANNSWALYP-----GKK-----P-----K			K 225
Eco EndoIII	154	-KN-----VEQMEKLLKMPA-EFKVDCHLHLLHGRYTCTIARPCGSCITLEDCEY			205
Tth MutY	211	RRAK-----EER--LVALVLLGRKG-----VHLERLEGR-----FGGLYGVPLFPP-EELP--GREMAFGVRS-----RP-----L			266
Hsa MutY	337	QTLGV---VNFPRKASRKPREESSATCVLEQPGA---LGAQIILVQRNSELGLAGLWEEFSPVTW-EPSQEQLOKALLOELQRWAGP---LPATHLRHL			425
Spo MutY	277	EDLQNWVARYVPHPAKTKQRE-ERALLWTFQKTDPTSTKEFFLIRKRPSAGLLAGLWDFPTIEFGQESWPKDMDAIFQKSIQAQWISNDSRSLIKKYQSR			375
Eco MutY	226	QTL-----PER---TGVFLLQH-----EDEVLLAQRPSSGLWGLYCFPOFAD-EES-----LROMLAQRQ-----IAADNLTLQ			287
Eco EndoIII	206	--K-----EKVDL			
Tth MutY	267	GEVPRALTHRLR-----VEVR-GALMEGEEDPWKRP--LPKLMKVLKALP	LAH-----		AGWVLPDA
Hsa MutY	426	GEVPRALTHRLR-----VEVR-GALMEGEEDPWKRP--LPKLMKVLKALP	LAH-----		AGWVLPDA
Spo MutY	376	GRYLHIFSHIRKTSHFVATAS---PDIVIMEDFFMISQDL EHVGMG-----ELGLNRYALAEIKKRK-----VTSLSN-----FKEPKLITARRIVTKAEC			461
Eco MutY	288	TAFRTHFSHFILD-----IVP---MLPVSSFTGCMD-----EGNALWNLAAQPI-PSVG-----LAAPVER-----LLQQLRTGAPV			350

Tth (Thermus thermophilus HB8), Hsa (Homo sapiens), Spo (Schizosaccharomyces pombe), Eco (Escherichia coli)
Residue essential for N-glycosylase activity * Residues constituting an iron-sulfur cluster

FIG. 5